

Some law, known or unknown, rules each." I thought it vastly comprehensive and expansive, tersely and gracefully put. To my mind it is worth a whole library of Stuart and Revett's, a world-wide pit of old churches and old chairs. "But," continues 22, "is there anything more difficult to define than beauty?" True likewise, in very much degree, and in great comprehensiveness. Yet is the study of it fraught, in my fancy, with every profitable and every beautiful result. I wish I had a ten years' day to sit down and search for it!

"Is not proportion," inquires Maxim 26, "the principal ingredient of beauty in architecture?" Maxim 31—"Three principles must be observed in the adoption of any object, or member, or detail in architecture, appropriateness, proportion, form," seems to convey a very clear and correct idea, which we may extend, of course, beyond the lesser and inferior features to the greater and superior. But whether the former maxim is correct in assigning to proportion eminence and value above the rest is what I would not decide at once affirmatively. Proportion has its rule, however, in much more than mere superficial shape. There is a balance and adjustment—a harmony and good relation—in outline, in solid, in colouring, in disposition—combination and resolution, in ornament—style and character even in materials conjoined, which, although the provinces of appropriateness and form may be somewhat invaded if we were to call all this proportion, might still be called so without misconstruction, and not unprofitably studied as such; for these proportionings are too little studied in our times, or at all events too empirically.

The maxim of Blondel (26), and that of Milizia (27), that all other excellence is but comparatively barren of result where proportion is neglected, may be widely true; but no less is the most excellent proportion of surface and general mass deficient as to refined pleasure if unsupported by what I have designated proportion in other forms; and it is a question which is the more painful,—the regret that a work, of elaborate, appropriate, and elegant detail should be devoid of the more primary harmonies, or the disappointment when a fabric of beautiful mass exposures, at every nearer step, greater and more numerous deficiencies in elegance and grace.

Mr. Donaldson more than once makes use of the phrase *conventional Laws of architecture*. The reader must beware of misinterpreting the term. Architecture has no conventional laws except in mere government of style—character—consistent spirit. The harmony which, as a first principle, must pervade a composition, constitutes and is constituted by a governing characteristic spirit, which, of course, is conventional law or its equivalent, in so far that it is more or less a matter of choice in the composer. The designer who keeps harmony of style and character in view chooses and follows a certain spirit as the spirit of his design—a conventional law for the occasion. But here, also, avoid misinterpretation of the word. "Conventional," says my dictionary, "stipulated—agreed on by compact." The compact I refer to is a compact of the designer with himself,—he simply decides that such a spirit shall be the governing spirit of his work. If you rather mean by *conventional* that the compact is a compact of public standard, a recognised system of styles and their details holding an authority by public acknowledgement, then I must make objection to the idea. Certain standard styles we have in nineteenth-century practice unquestionably, and their government by established recognised details I will admit to be frequently most unexceptionable and true. But if it be thought that this is conventional law of limitation condemning every thing beyond its own pale, the notion is manifestly erroneous. Architecture is as free as poetry or music,—its variety limited by only equally illimitable principles with theirs. There are poets and musicians in plenty, with whom composition is but a thing of the conventionalisms of authorised manner as with our architects,—they sit down and select a style from among the standard styles, and perhaps a model from among the standard models, and copy precedent unwaveringly. But there are also those who follow a

very different system; and there will be such in architecture too.

I will merely remark in connection with part of this, what I cannot now pause to enlarge upon, but would not pass over without note,—the valuable thoughts on harmony. "Unity in diversity, and diversity in unity, the law of nature." "There must be harmony in contrasts, and contrasts in harmony" (Maxim 60). "In fact (Maxim 71), can any effect be produced without contrasts? But all contrasts must have relation to each other to produce a just effect, and a *tertium quid* to prevent rude and harsh juxtapositions of contraries; a middle term, as it were, to complete the architectural syllogism." Such aphorisms as these may be long thought over ere their field of study is exhausted.

As a last subject as present I have noted the excellent maxim No. 59. "Picturesqueness is no excuse for crude forms or barbarous parts." Many of our best architects have need to study this. I have always considered Burke to be egregiously in error when he draws a distinction between beauty and the sublime, and Priece or Gilpin, or whoever it is, when he draws a distinction between beauty and the picturesque. Such distinctions are philosophically false. You may distinguish between the picturesque beautiful and the non-picturesque beautiful; but the picturesque itself is only one province of the beautiful. It seems to be often thought that it is rather a kind of hideousness,—confusion rather than method,—utter recklessness and fantastic license; instead of truly only piquant but graceful abandonment.

The remaining portions of the work,—the maxims under the head "Construction," and the "Lecture on the Architect,"—I must leave for another article. But as I have now done with one part of the work not to recur to it formally, I must not neglect to offer to the author my tribute to the value of his work. I have myself, in reading carefully, read profitably; the minute fulness of detailed argument cannot be there, but perhaps its absence affords us more pleasantly the rich thinking which a well-pointed aphorism provokes.

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ROOF-COVERINGS.

PROFESSOR HOSKING'S LECTURES ON THE ARTS OF CONSTRUCTION IN CONNECTION WITH CIVIL-ENGINEERING AND ARCHITECTURE.

THIS course of instruction by Professor Hosking, at King's College, London, is intended to afford to students intended for the profession of civil engineering and architecture the means of acquiring such general practical knowledge as will enable them to apply the information obtained in other classes, and qualify them to understand, and thereby to avail themselves of, the practice of the engineer's and architect's office.

The professorship was established in Mr. Hosking's person, now eight years ago; and there are already many men in active practice, in both branches of the profession, who first heard described the processes of the bench, the banker, and the scaffold, when attending this course, the nature and objects of which are above indicated, and the matter of which may be judged of, so far as regards the more familiar operations, by the following brief notes of part of one of the Professor's lectures:—

"Tiles and slates are the materials most commonly used for covering the roofs of buildings; and they are, upon the whole, the best adapted for the purpose when economy is to be regarded, and when a sufficient pitch or slope can be obtained to render them effectual by the ordinary mode of applying them. Whether tiles or slates are the better in any case, will depend upon the quality of the article obtainable,—well-formed and well-burnt tiles being preferable to soft and rough-faced, or to thin and brittle slates;—whilst in some places the one kind of material, and in some places the other, will be found to be the cheaper, according to the circumstances of the locality.

Tiles for the purpose of covering roofs are made of different forms, and are susceptible thereby of different modes of arrangement in use; and slate is, in like manner, applied in more than one form and more than one manner: but when tiling and slating are

spoken of without any term of qualification, plain-tiling, and slating with slates brought to the shape of a plain tile, and applied as plain tiles are applied in roof-covering, are understood.

As between these two familiar kinds of roof-covering, tiling with tiles of the best quality is preferable to slating in one particular only, and that is, that the material conducts or transmits heat less freely than slate does; and, consequently, other things being the same, a plain tiled house is warmer in winter and cooler in summer than a slated house, whilst slates are obtainable of so much larger size than tiles can be conveniently made, and require thereby fewer joints in the same space to be covered; and, at the same time, so much thinner, that they allow of the lap without tilting as tiles tilt, and so lie closer, course upon course, than tiles can be made to lie; and, as a material, slate is less absorbent of water than tile material, and may be laid flatter therefore; and because of the more compact bedding of slate upon slate than tiles can be laid, slating will admit of a flatter pitch than tiling.

The principle upon which tiles and slates are laid to cover roofs is the same, however. Whether tiles or slates, they are laid side by side, but not lapping over, nor, indeed, touching one another sideways; and so in a long straight row, to the extent of any side or face of a roof.

In the case of the lowest or even-course, the slates first laid are not of the whole length of the slates employed, for a reason to be explained, though it is tolerably obvious; that is to say, the second course of slates must cover down to their lowest edge, or drip, the slates of the course first laid, to prevent the water from passing through between their sides or edges, and this process is called doubling; but to prevent the doubling of the even-course from tilting up the drips of the slates of the next course above, the first slates laid should be no longer than the gauge and bond united of the work to be executed. The even-course, being laid and doubled, the second course is laid above it, to cover and break joint with that below, and so on, course after course, to the ridge or other termination of the side or face of the roof, when the imperfect breaking off of the tiling or slating is rendered harmless by a ridge or saddle-tile, or by lead laid over a ridge-roll, and extending down on both sides to produce the same effect.

But the placing of slates, side by side, in courses, the course above curing the defect in the course below, by covering the open side joints which they all exhibit, requires to be regulated carefully, so that every side joint shall certainly have a slate below as well as a slate above it, and not only to the extent of the drip of the slate above, but so much further up as to provide against the effect of driving rain and snow as well as to cover and protect the pin or nail as the case may be, by which the tile or slate is hung up or otherwise kept in its place upon the roof. Take slates, of the size known in the London market as Duchesses. These are considered to run 2 feet long each, and when they are of such length in every part, they may be laid with a 10½ inch gauge, that is to say, 10½ inches of every course may be left uncovered by the course next above it, by which means there would be a bonding tail of 3 inches, in about the middle of which length the nail holes ought to fall, leaving in such case, however, a true bond or overlap upwards of not more than 1½ inch. But if the length of the slates be, as it commonly is, less than 2 feet, by 1 or even 2 inches, a 10½ inch is more than they will bear, so that the arrangement of slates ought to be always determined by the bond or overlap upwards, and not by the gauge, whilst with tiles which are of certain length, it is indifferent whether gauge or bond is specified. The doubling even-course, that is to say, the first course laid, ought to be in length equal to the gauge and the bond, and consequently always more than half the length of a slate."

And so on, describing the rest of the operations connected with tiling and slating; and then the processes, with the various kinds of metals, the descriptions in words being aided by diagrams chalked on a board as the words are uttered.